

Micro Illustrator™

...closes the gap between *what you can dream*
and *what you can draw*.



A touch of genius.



Micro Illustrator

User's Guide for the
Chalk Board™ PowerPad™ and the
Atari® 400/800 Computers



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INTRODUCTION

Developed by Island Graphics Corporation for Chalk Board, Inc., Micro Illustrator is an exciting design tool for both the beginning and the experienced artist. With its unique drawing functions, various brushes, and selective color sets, Micro Illustrator encourages you to experiment with your talents and imagination. You can easily create a new type of image, sophisticated and enhanced by the features of this package. Using a stylus or your finger on PowerPad's surface, you can explore graphic arts to the fullest. You can even save your pictures for viewing or changing later. Micro Illustrator closes the gap between what you dream and what you draw.

GETTING STARTED

Before you begin to use Micro Illustrator, you need to complete a few simple steps.

Attaching PowerPad to Your Computer

If you have not already done so, consult the PowerPad User's Guide which accompanied your PowerPad. This guide shows you how to attach the PowerPad connector cable to your Atari computer without any difficulty. Diagrams are included. Additionally, the PowerPad User's Guide gives you care and maintenance information to help you keep PowerPad operating in good condition.

NOTE: Be sure to turn off your computer and monitor before connecting PowerPad.

The Overlay

Micro Illustrator comes with a plastic overlay the size of PowerPad's drawing area. The overlay displays five command buttons and a grid.

Gently guide the overlay's frame into the groove around PowerPad's work surface. Once in position, the frame snaps easily in place. To remove the overlay, use the tabs at the top of the frame.

The Stylus

Included in your Chalk Board PowerPad package is a stylus which you can use to draw on PowerPad. This stylus can help control your drawing with great accuracy. If you use any other stylus, be sure that it is not sharp. A sharp point can puncture PowerPad and cause permanent damage. A plastic or wooden stylus is best.

Like all pointed objects, the stylus must be handled carefully by small children. Please use care to avoid accidents.

The Cartridge

NOTE: If you intend to store pictures on a diskette or cassette, check your storage device now. Be sure that it is properly connected before you turn on your computer. If you are using a disk drive system, be sure you have a diskette *with Atari DOS* in the drive.

Be sure that nothing is touching or resting on PowerPad's surface, and that you have followed the directions in the PowerPad User's Guide to connect the pad and your computer. Be sure your storage device is connected properly. Then follow this procedure:

- Insert the cartridge into your computer.
- Turn on the monitor.
- Turn on your computer.

In a few moments, the title screen for Micro Illustrator appears.

Colors on Your Screen

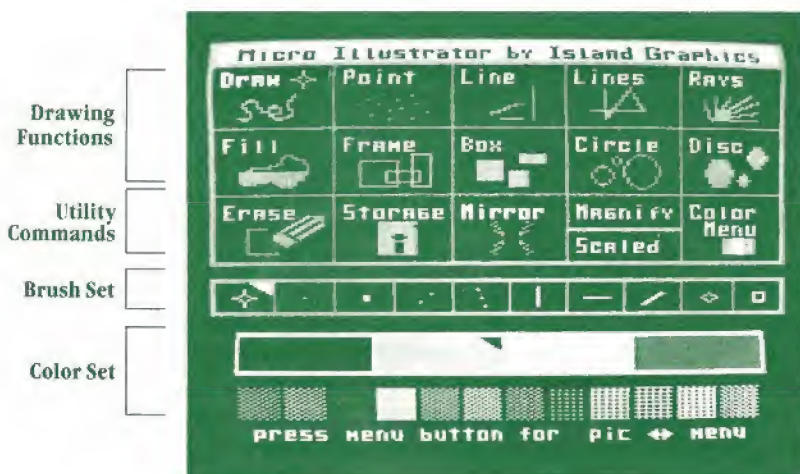
If you aren't seeing colors the way you expect them, you may need to adjust the color controls on your monitor. Micro Illustrator may look different on your neighbor's screen than it does on yours. This may be caused by a difference in your screens. Also, if your neighbor is not using an Atari computer, you may notice a difference in color capabilities. This difference is dependent on your computers, not on the software.

YOUR FIRST DRAWING

Once you have read the title screen and copyright information, press any point on the surface of PowerPad. The copyright screen is replaced with the screen menu.

The Screen Menu

Take a few moments to study the screen menu. The menu lists your options for drawing, coloring, changing and saving pictures.



The screen menu has four sections: the first two rows contain the ten drawing functions. The third row contains the utility commands. Below the utilities is a row of cursor choices called the brush set. At the bottom of the menu is the color set. Later, you will learn how to use all of the options on the screen menu and to change the color set choices.

The Defaults

A *default* is an option that is automatic until you change it. When the screen menu appears for the first time, Micro Illustrator, by default, selects three options for you. They are DRAW, CURSOR and the color *orange*. Look at the screen menu. Notice that the word DRAW

appears in brighter letters than those of other words in the design command section. In the upper right corner of both the CURSOR box and the solid orange paint box, small triangles appear. Bright letters and the small triangles tell you that you are now ready to *draw* freehand, using the *cursor* and the color *orange*.

The Overlay's Buttons

Examine the Micro Illustrator overlay. Across the top are five buttons, two labeled PEN DOWN, two labeled MENU and one labeled LOCK. Below the buttons is the grid you use for designing and drawing.

The overlay's buttons allow you to control the screen in the following ways:

PEN DOWN

Press and hold this button with one hand to draw on the screen with your other hand. This button also allows you to "choose" items from the Micro Illustrator screen menu when you press the button while the cursor rests in an option box.

MENU

Press this button to alternate between the screen menu and the drawing screen.

LOCK

Press this button to lock the pen in a down position. This allows you to draw without holding PEN DOWN continuously.

Make Your Mark

Proceed from the screen menu to the drawing screen now by pressing either MENU button on the overlay.

The flashing cursor appears on a black screen. With your finger or the stylus touch the grid area of the overlay. Notice you are not making any marks yet. Try moving the cursor around the screen, getting a feel for the pad at the same time. Watch the screen as you move the cursor.

What happens if you lift your finger off PowerPad? What happens when your finger wanders into the button area of the overlay?

By now you should be ready to draw. Press and hold the PEN DOWN button on PowerPad *while* you move your finger around the overlay with your other hand. You are drawing a thin orange line. Continue to experiment with the feel of PowerPad. See how much of the screen you can cover. What happens if you lift your drawing finger for a moment, and then return it to the pad? What happens if you release your pressure on PEN DOWN?

One-handed Drawing

Look again at the buttons on the overlay. Notice the center button labeled LOCK. You can use this button to lock the pen in a down position. This allows you to draw without holding PEN DOWN continuously.

Control LOCK in this way:

- Press LOCK on PowerPad to continue drawing without needing to hold PEN DOWN.
- When you want to release the lock, press LOCK again. If you want to release the lock *and* return to the screen menu, press MENU.

NOTE: LOCK affects your drawing only when you are using the DRAW design option. Otherwise, this button acts like PEN DOWN.

Changing Colors

Would you like to add another color to your drawing? To change colors, you must return to the screen menu and select the new color.

- Press MENU on PowerPad to return to the screen menu.

Notice the four solid-color boxes at the bottom of the screen. The first box on the left always contains the picture's background color. This box now contains the color black—the

same color of your picture screen when you began. The three colors to the right are the three foreground colors with which you can draw on the background. Below the four solid-color boxes are twelve checkerboard patterns, each of which is a variation of a current solid color. You also can choose from these patterns for your drawing color.

- When the screen menu appears, move your finger over PowerPad until the cursor rests in the box of the new drawing color you want. Do *not* choose black because black is the background color.
- Press PEN DOWN on PowerPad to select your new drawing color choice.

Notice the small triangle jump from the orange box to the new color box.

- Return to your unchanged picture by pressing the MENU button on the PowerPad overlay, and continue to draw.

NOTE: The COLOR MENU section of this manual gives you complete directions for changing the options of the current color menu, allowing you 256 color variations.

Erasing the Picture

Micro Illustrator gives you two options for erasing the screen image: you can erase *part* of it or *all* of it.

Erasing Part of the Picture

When you want to erase only part of the screen, you actually paint over the unwanted part using the background color.

- On the screen menu, select the background color as your drawing color.
- Select any brush.
- Return to the picture and “erase” unwanted parts by drawing over them in the background color.

Erasing the Entire Picture

Maybe you have experimented so much that you want to erase the entire screen and start again.

- On the screen menu, move the cursor into the ERASE box.
- Press PEN DOWN on PowerPad. The screen menu changes to the ERASE SCREEN.

The ERASE SCREEN gives you two options: erase the entire picture screen or cancel the erase and return to either the screen menu or the current picture.

- To erase the entire picture screen, move the cursor over the word YES below the question and direction "ARE YOU SURE? Touch here or press Y." Press PEN DOWN on PowerPad or the Y key on the Atari keyboard. The display clears to a fresh screen the color of the current background color.
- To cancel the erase and return to the picture screen, move the cursor over the word NO below the line "ANYTHING ELSE CANCELS ERASE." Press PEN DOWN on PowerPad. Press MENU to return to the screen menu.

Changing Brushes

Let your curiosity help you discover the differences among the various brushes. Choose a new brush to see how it affects your drawing.

- Return to the screen menu by pressing MENU.
- When the screen menu appears, move your finger over PowerPad until the cursor appears in the box of the brush you want to try.
- Press PEN DOWN on PowerPad. Notice the small white triangle leaves the CURSOR box, appearing in the new brush box.
- Return to your unchanged picture by pressing MENU and begin to draw.

How do the various brushes affect the lines you make?

NOTE: The **CURSOR** leaves the same mark as the first brush to its right, the small dot.

THE SCREEN MENU COMMANDS

Now you are familiar with the DRAW command on the screen menu, the various brushes and the color options. You know how to lock the pen in place to draw using only one hand. You also know how to erase the picture completely or partially. You can use the buttons on the overlay to alternate between the menu and picture screens, and to activate new brush and color options. Micro Illustrator also contains nine other design commands, three special effects commands, a utility command and a color menu option.

The Design Commands

The top two rows of the screen menu contain Micro Illustrator's ten design commands. You have been using the DRAW command to make a freeform design. You can also use POINT, LINE, LINES, RAYS, FILL, FRAME, BOX, CIRCLE and DISC.

FOLLOW THESE STEPS EVERY TIME YOU WANT TO USE ONE OF THE DESIGN COMMANDS.

- On the screen menu, move the cursor into the box containing the design command you want. You can use only one design command at a time.
- Press PEN DOWN on PowerPad. The word at the top of the design command box brightens, indicating your choice.
- Return to your unchanged picture by pressing MENU and continue designing.

NOTE: The cursor or the brush you are using determines significantly the appearance of each design. To become acquainted with brush effects on your picture, experiment with each command several times, using different brushes.

Point

POINT

With POINT you can draw points the shape and size of your current brush.

- Without pressing PEN DOWN, position the cursor where you want the point.
- Press PEN DOWN on PowerPad.
- Release and press PEN DOWN for each new point.

A single point the shape of your brush appears. (If you are using the cursor instead of a brush, you make a single dot like that of the smallest brush.)

Line

LINE

With LINE you can draw a straight line in any direction from a single point.

- Without pressing PEN DOWN, position the cursor where you want the line to begin.
- Press and release PEN DOWN to set the beginning point.
- Move your finger across PowerPad until the line is the length you want. Rotate the line into the correct position by "sweeping" your finger across PowerPad.
- When you are pleased with how the line looks, press PEN DOWN again to draw the line.

Lines

LINES

With LINES you can draw a series of connected straight lines. Each line begins at the ending point of the line before it.

- Without pressing PEN DOWN, position the cursor where you want the first line to begin.
- Press PEN DOWN to set the beginning point.
- Move your finger about PowerPad until the line has correct length and position.
- When you are pleased with how the line looks, press PEN DOWN again to draw the line.

- Repeat the preceding steps for as many adjoining lines as you want.

Remember that in each case, a line can extend any length in any direction from its beginning point.



RAYs

With RAYS you can draw a series of lines radiating from a common point in a fanlike manner.

- Without pressing PEN DOWN, position the cursor on the common point from which you want the rays to extend.
- Press PEN DOWN once to set the common point.
- Move your finger to draw the beginning ray on the screen to the length and position you want.
- Maintaining pressure on the grid, press PEN DOWN with one hand while you move your other hand about the grid in any direction to draw rays.



FILL

With FILL you can "paint" an area with the current color.

- Position the "FILL cursor" into the area you want to paint. Notice this cursor looks like the regular cursor with the word "FILL."
- Press PEN DOWN to fill the area.

When you use this command, the screen fills until it hits a "wall." The command works like paint poured into a bucket. If the bucket is solid, if your object is drawn with a solid continuous line, the "paint" stays inside it. If the bucket has a hole in it, if your line is broken, the paint leaks out of the hole.

FILL works to color even single lines or dots. Any solid color can be filled with a new color.

Cancel a FILL during its execution by quickly pressing the space bar on your Atari keyboard.

NOTE: The checkerboard colors are composed of patterns over a solid color. When you try to fill an object painted in checkerboard, only one square in the checkerboard fills. If you want to paint an entire checkerboard object, use DRAW and a wide brush.



FRAME

With FRAME you can draw a rectangle extending in any direction from a given point.

- Without pressing PEN DOWN, position the cursor where you want to set the first point. This point will be one of the rectangle's corners.
- Press PEN DOWN to identify this first point.
- With continuous pressure on PowerPad, move your finger to extend the rectangle to the size and position you want.
- When you have positioned the rectangle as you want it, press PEN DOWN again to draw the frame.



BOX

With BOX, as with FRAME, you can draw an outline of a rectangle extending in any direction from a given point. Unlike FRAME, this command creates a solid box in the current color.

- Without pressing PEN DOWN, position the cursor where you want to set the first point.
- Press PEN DOWN to identify this point.
- With continuous pressure on PowerPad, move your finger to extend the rectangle to the size and position you want.
- When you are pleased with how the rectangle looks, press PEN DOWN again to draw the solid box.

To stop the filling of the box before it reaches its complete size, quickly press the space bar on the Atari keyboard.



CIRCLE

With CIRCLE you can draw an outline of a circle extending outwards from a specific point.

- Without pressing PEN DOWN, position the cursor where you want the center of the circle to be.
- Press PEN DOWN to identify the point as the circle's center.
- With continuous pressure on PowerPad, move your finger to extend the circle outwards from the center point.
- When you are pleased with how the circle looks, press PEN DOWN again to draw the circle.



DISC

With DISC, as with CIRCLE, you can draw a circle extending from a specific point. Unlike CIRCLE, DISC creates a solid circle in the current color.

- Without pressing PEN DOWN, position the cursor where you want the center of the disc to be.
- Press PEN DOWN to identify the point as the disc's center.
- With continuous pressure on PowerPad, move your finger to extend the disc outwards from the center point.
- When you are pleased with how the disc looks, press PEN DOWN again to draw the disc.

To stop the filling of the disc before it reaches its complete size, quickly press the space bar on the Atari keyboard.

Canceling a "Seed" Point

These commands require that you press PEN DOWN to begin execution or set a point: LINE, LINES, RAYS, FRAME, BOX, CIRCLE and DISC. In all cases, pressing PEN DOWN sets a "seed" point. Around the seed point you "rubber band" your design until it is the size and shape you want and until it is positioned as you want it. To cancel the seed point so you can

move it, lift your finger from the pad and press MENU.

THE SPECIAL EFFECTS AND DISK UTILITY COMMANDS

You are now familiar with the top two rows of the screen menu, the design commands. The third row of the screen menu contains the special effects and utility command, and the color menu access. (The COLOR MENU option is the subject of the next section of this manual.) In addition to ERASE, which you already know how to use, these commands include the following: MIRROR, MAGNIFY, SCALED and STORAGE.



MIRROR

MIRROR is used with any design command to create a four-part mirror image, extending from the center of the screen.

- Activate the command by pressing PEN DOWN when the cursor rests in the MIRROR box on the screen menu.

Use any of the ten drawing functions *except* FILL with MIRROR to create kaleidoscopic designs. FILL works only in one screen section at a time.

When you want to stop using this function, return to the screen menu.

- Deactivate the command by pressing PEN DOWN when the cursor rests in the MIRROR box.



MAGNIFY

This command is used with any design command to magnify your drawing seven times its original size.

- Activate the command by pressing PEN DOWN when the cursor rests in the MAGNIFY box on the screen menu.

Use any of the ten drawing functions with

MAGNIFY to observe your pictures or to add detail. When you move to the picture screen, your picture is magnified.

When you want to stop using magnification, return to the screen menu.

- Deactivate the command by pressing PEN DOWN when the cursor rests in the MAGNIFY box.

Scaled

SCALED

For most drawing, the standard direct drawing mode is a good method for positioning your designs on the screen. In this mode the screen image reflects your movement on PowerPad.

With standard drawing, your movement on PowerPad makes a pattern on the screen in a direct (or absolute) relationship to your movement on PowerPad. If you draw a line beginning at the bottom left corner of the pad, you create a line at the bottom left corner of the screen. If you draw diagonally across the pad to the upper right corner, the line on the screen also appears on the screen diagonally.

SCALED is an optional way of drawing. With this option active, the standard direct drawing mode is inactive. SCALED allows you to continue drawing from the last point on the screen, *despite* where you touch PowerPad to continue. You can use this option with any of the design commands.

With *scaled* drawing, your movement on PowerPad makes a pattern on the screen relative to your last touch. When you lift your finger from the pad and then touch the pad again, drawing continues from the last, previous position on the screen despite where you touch the pad. In scaled drawing, you cannot draw a line across the screen in one motion as you can in the standard drawing mode. If you move your finger across the entire length of the overlay, you notice the cursor does not travel the entire length of the screen. Lift your drawing finger from the overlay for a moment. Then touch the overlay anywhere on the grid and move your finger in the direction you want

the line to continue. The line continues from where it had stopped. Despite where you touch the pad the second time, the line continues from its last point. A "sweeping" action across the pad is required for you to draw completely across the screen.

- Activate this command by pressing **PEN DOWN** when the cursor rests over the **SCALED** box on the screen menu.
- Deactivate this command by pressing **PEN DOWN** when the cursor rests again over the **SCALED** box on the screen menu.

NOTE: While you can use only one design command at a time, you can use **MIRROR**, **MAGNIFY** and **SCALED** in any combination with a single design command.

The Storage Utilities

The **STORAGE** function allows you to do five things: load a previously saved picture from a diskette or cassette, save the current picture to a diskette or cassette, view a disk directory, delete a picture from a diskette, and format a blank diskette.

PowerLog Cards

Find the **PowerLog** cards that come with **Micro Illustrator**. Use these cards to keep a record of all the pictures you save on a single diskette or cassette.

The top of each card is labeled **DISK/TAPE Name**. In this space write the name of the diskette or cassette that you are using now. For example, you might name the present diskette or cassette "**PAINT**".

The second line is labeled **SOFTWARE NAME**. This space is for the name of the product you are using. Write "**Micro Illustrator**".

Notice the **PowerLog** card is divided into three columns. The information for each

column is important to help you remember how and where you have saved your pictures.

The first column is labeled "Date." For each picture you create, write the current date in this column.

The second column is labeled "Name/Mode." In this column write the name you have given your picture. You can use up to eight alphanumeric characters, beginning with a letter.

The third column is labeled "Description." In this column, use a few words to describe your picture to help you distinguish it from other pictures.

STORAGE

Activating STORAGE accesses a menu of five options. Selecting one of the options takes you to other direction screens where you carry out the commands by pressing appropriate keyboard letters.

- Begin the utility command by pressing PEN DOWN when the cursor rests in the STORAGE box.

The following screen appears.



The top five lines display the five storage options. The next three lines contain specific directions for the option you choose. Below these lines is a prompt line that displays error messages or additional directions whenever they are appropriate. The bottom line of the screen reminds you that pressing MENU on the overlay returns you to the current picture.

NOTE: PICTURE NAMES

Picture names with Micro Illustrator and your Atari computer can contain up to eight alphanumeric characters. The first character must be a letter. Enter letters in upper case only. Micro Illustrator assigns an extension (.PIC) to each of your picture files. You can replace the .PIC extension with an extension of your own up to three letters long. However, these files will not appear on the Micro Illustrator index (option three on the storage menu). You can still load these pictures. View the complete disk directory by returning to the operating system or referring to your PowerLog cards.

Cassette systems do not allow you to name files. Use the PowerLog cards to maintain a record of cassette files by noting the counter numbers on the cassette player (instead of a name) when you save the file.

Option 1: Load Picture

To load a previously saved picture, move the cursor onto the "Load Picture" line of the storage menu. Press PEN DOWN.

The following directions appear on the screen:

Load Picture
Enter DEVICE:FILENAME
→ — ←
Use Keyboard

The cursor is active. In answer to these directions, use the Atari keyboard to type the following:

- For a cassette system, type a C: to indicate the storage device and press RETURN on the keyboard.
- The system defaults to a diskette system. If you are using a diskette, you do not need to enter a storage device indicator. Type the picture's name and press RETURN on the keyboard.

With a cassette system, you are prompted with a beep. Press PLAY on the cassette player and RETURN on the keyboard.

The computer loads your picture from left to right or top to bottom, depending on the composition of the picture itself. The storage menu then reappears.

If you want to abandon the attempt to load the picture before you enter the name, press ESC on the keyboard. Press ESC twice (ESC ESC) to return to the current picture.

NOTE: If you are using more than one disk drive, you can indicate the drive of your load and save choice by preceding the file name with the letter D followed by the number of the desired drive. For example, to load a file called "FLOWERS" from Drive 2, enter the name in the following way:

D2:FLOWERS

Option 2: Save Picture

To save the current picture, begin by moving the cursor onto the "Save Picture" line of the storage menu. Press PEN DOWN.

The following directions appear on the screen:

Save Picture
Enter DEVICE:FILENAME
→ — ←
Use Keyboard

The cursor is active. In answer to these directions, use the Atari keyboard to type the following:

- For a cassette system, type a C: to indicate the storage device and press RETURN on the keyboard.
- The system defaults to a diskette system. If you are using a diskette, you do not need to enter a storage device indicator. Type the picture's name and press RETURN on the keyboard.

With a cassette system, you are prompted with two beeps. Press PLAY and RECORD on the cassette player and RETURN on the keyboard.

The picture you are saving remains displayed until the saving process is complete. Then the storage menu reappears.

If you want to abandon the attempt to save the picture before you press RETURN, press ESC on the keyboard. Press ESC twice (ESC ESC) to return to the current picture.

Option 3: Index Disk Pictures

This option allows you to view a directory (or catalog) of all the picture files on the current diskette saved by default with the ".PIC" extension.

If you want to load one of the pictures listed in the index, use your finger on PowerPad to move the cursor to the picture's name and press PEN DOWN.

Option 4: Delete Disk Pictures

This option allows you to delete a picture file from the current diskette. Move the cursor to the Delete Disk Picture line and press PEN DOWN.

The following directions appear on the screen:

```
Delete Picture from Disk
Enter DEVICE:FILENAME
→_←
```

Use Keyboard

The cursor is active. In answer to these directions, use the Atari keyboard.

- Type the name of the diskette file you want to delete.
- Press RETURN

Next you are asked:

Are you sure? (Type Y/N)

- If you want to delete the named file, press Y on the keyboard. If you want to abandon the deletion, press N.

If you want to abandon the attempt to delete the picture before you enter the name, press ESC on the keyboard. Press ESC twice (ESC ESC) to return to the current picture.

Option 5: Format Blank Disk

This option helps you prepare a blank diskette to use as a storage diskette for your pictures. Begin to use this option by moving the cursor onto this option and pressing PEN DOWN.

The computer prompts you:

Insert a Blank Disc in Drive 1

- Remove the current diskette from Drive 1, replacing it with a blank diskette. Press RETURN.

You are prompted again.

Are you sure? (Type Y/N)

NOTE: Be careful you are not formatting a diskette with valuable data. Formatting erases everything from a diskette.

- To format the current diskette, press Y on the keyboard. Once formatting begins, you see the message "Formatting..." on the message line of the storage menu.
- To abandon the formatting attempt, press N.

THE COLOR MENU

The Atari computer allows you to choose from among sixteen different colors. Each color can be used at one of sixteen levels of luminence. This feature makes it possible for you to create designs using your choice of 256 colors. The COLOR MENU option on the screen menu allows you to select the colors you want to use. This menu also contains four options for changing or adjusting the colors that already exist in your current picture.

A Word About Atari Colors

Before you begin to experiment with changing the color menu, examine the color selections on the bottom of the screen menu. Notice that four solid colors appear across the top of the color selection area. The first box, now black, represents the background color. The next three boxes represent the three solid foreground colors, "paint" colors with which you can draw: orange, green and blue. Below the four solid colors are the twelve checkerboard paints. These patterned paints are the four solid colors mixed with patterns of black.

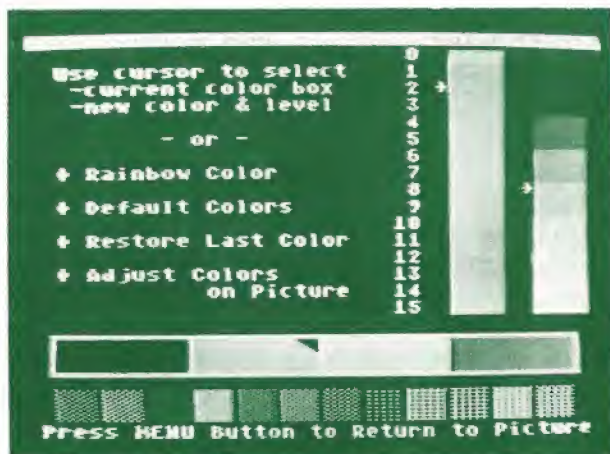
Because Micro Illustrator gives you so much flexibility and detail in designing your pictures, most Atari computers limit you to using four colors on the screen at a time with this program. This means you can use the one background color and three paint colors. (You also can use all twelve of the patterned paints formed from these three solid colors.) When you move to the COLOR MENU to select a fourth paint color, the new color appears on the screen as soon as you return to your picture. However, the paint color you replaced also becomes that fourth color.

After you learn to change picture colors, you might want to experiment with this feature. Draw simple figures in a variety of solid colors. Watch the screen carefully to understand the pattern of change that occurs each time you use a new color.

Reaching the COLOR MENU

On the screen menu, move the cursor into the COLOR MENU box and press PEN DOWN.

The screen menu is replaced by the COLOR MENU.



The COLOR MENU is divided into three parts. On the left side of the screen are selection directions and four options you can choose to manipulate the colors of the current picture. The right side of the menu contains two vertical bars. The bar to the left (Color) represents the sixteen color options (hues) of the Atari. They are numbered from zero to fifteen. The bar to the right (Level) represents the sixteen levels of luminance (brightness or intensity) of each of the sixteen colors. These levels are numbered from zero to fifteen. Across the bottom of the menu are the current four solid colors, as well as the twelve checkerboard patterns.

Move your cursor into the first solid color box, which represents the black background. Press PEN DOWN, moving the indicator triangle into that box.

Now look at the two vertical bars at the right. Colors in both bars have changed. In

both the COLOR and LEVEL bars, an arrow points to the zero option (\rightarrow 0). This indicates that the black background (in which you have the indicator triangle) is the 0 color at the 0 level of luminence. Other colors in the COLOR bar appear in their lowest luminence as well.

Changing the Level of Luminence

Notice that the LEVEL bar now displays various luminences of black. The top of the bar, the zero level, is solid black. As you move down the bar toward level fifteen, you approach different levels of grey, finally reaching white.

Move the cursor midway down the LEVEL bar to level seven or eight. Press PEN DOWN. Notice how the background box at the bottom of the screen takes on the new level of luminence, appearing more grey than black. Colors in the COLOR bar change their luminences, approaching pastel shades. Checkerboard patterns at the bottom of the screen also change, becoming more grey.

Move the cursor to the fifteenth level and press PEN DOWN. How does the background box look now? What other changes do you notice on the screen?

To change the luminence of a selected color, follow this procedure:

- Move the cursor to the bottom part of the screen into the box of the color you want to change.
- Press PEN DOWN to move the indicator triangle into the box. The arrows in the COLOR and LEVEL bars indicate the current color.
- Move the cursor into the desired position on the LEVEL bar.
- Press PEN DOWN. The arrow in the LEVEL bar moves to your new choice, and the new luminence appears in the color box.

Changing the Color

Now that you know how to control the luminence level of your colors, experiment with changing the color itself. Use the following procedure to change your background color from black to red.

Notice the sixteen color options of the COLOR bar. The top of the bar, the zero level, is solid black. As you move down the bar toward level fifteen, you move through the color spectrum, finally approaching brown.

Move the cursor down the COLOR bar to level three or four. Press PEN DOWN. Notice how the background box at the bottom of the screen becomes red. The level of luminence of the color red depends on the current value in the LEVEL bar. The three checkerboard patterns at the bottom of the screen below the background box change also to include red in their patterns.

To change the background color or one of the three paint colors, follow this procedure:

- Move the cursor into the bottom part of the screen into the box of the color you want to change.
- Press PEN DOWN to move the indicator triangle into the box. The arrows in the COLOR and LEVEL bars indicate the current color's hue and luminence.
- Move the cursor into the desired position on the COLOR bar.
- Press PEN DOWN. The arrow in the COLOR bar moves to your new choice, and the new color appears in the color box.

Updating the Picture

While you have been changing the current color on the COLOR MENU, the computer and Micro Illustrator have been changing your picture to reflect your new color choices. Return to the current picture now by pressing MENU.

The black background color you began with is now red. Paint colors have not been affected.

Press MENU again to return to the screen menu. Notice the color selections at the bottom of the screen reflect the change you made on the COLOR MENU.

The three default paint colors, the colors that are active when you first begin to use Micro Illustrator, are the following:

- Orange, Color 2, Level 8
- Green, Color 12, Level 10
- Blue, Color 9, Level 4

Change paint colors in the same way as you changed the background color. As you change paint colors, the computer keeps track of your choices and changes your picture accordingly. Remember that only three solid paint colors can be used at one time.

Other COLOR MENU Options

Four additional options on the COLOR MENU allow you to manipulate your current picture's colors.

Before exploring these options and the ways you can use them, erase your current picture. (Save it first if you want.) Then move to the picture screen and draw three solid boxes, each in one of the three current solid paint colors. Use the BOX design command. Make the boxes as large as you can. When you are finished, return to the screen menu and select the COLOR MENU option.

Notice the four options listed in the upper left of the COLOR MENU: Rainbow Color, Default Color, Restore Last Color and Adjust Colors on Picture.

Rainbow Color

This option allows you to "rainbow" all the colors of the spectrum in place of one current solid color. It creates a dynamic, kaleidoscopic effect. Colors "move" in a downward pattern through your picture. Using this option, you can turn an ordinary design into a beautiful running demonstration of your artistic talents.

Select this option and return to your picture in this way:

- Choose the color you want to rainbow by moving the cursor into the appropriate color box at the bottom of the COLOR MENU.
- Press PEN DOWN.
- Move the cursor onto the diamond to the left of the "Rainbow Color" option on the screen.
- Press PEN DOWN.

When you press PEN DOWN, the screen automatically returns to your picture and the rainbow moves through the area of your picture that contained the color chosen on the COLOR MENU.

To stop the rainbow effect and return to the COLOR MENU, press the space bar on the Atari keyboard.

Default Color

This option is a quick way to change all current colors into the default colors. Default colors include a black background and paint colors of orange, green and blue.

Select this option in this way:

- Move the cursor onto the diamond to the left of the "Default Color" option on the screen.
- Press PEN DOWN.

When you press PEN DOWN, the screen automatically replaces your color selections with the default colors. These changes also occur on the picture screen and the screen menu.

Restore Last Color

When you first move onto the COLOR MENU, notice the color selections currently in the boxes at the bottom of the screen. Choose one or more of the colors to change. Experiment with both hues and levels of luminence.

After making color changes, you can recover the original color of a box using the "Restore

Last Color" option. Select this option and recover an original box color in this way:

- Choose the box of the color you want to recover by moving the cursor into the appropriate color box at the bottom of the COLOR MENU. For example, if you want to recover the background color, move the cursor into the first box on the left.
- Press PEN DOWN.
- Move the cursor onto the diamond to the left of the "Restore Last Color" option on the screen.
- Press PEN DOWN.

When you press PEN DOWN, the screen automatically changes the color in the chosen box to what it was when you first moved to the COLOR MENU.

NOTE: Using this option, you can recover only one of the colors that were active when you moved to the COLOR MENU.

Adjust Colors on Picture

This option is an invaluable help when you want to experiment with changing colors *while you are viewing your picture*. This option allows you to select a color in the current picture and change both its hue and luminence levels without having to alternate between the picture and the COLOR MENU.

Before choosing this option, create a multi-colored design on the picture screen. (If you still have your three-box picture, you can use it.)

Select this option and return to your picture in the following way:

- Move the cursor onto the diamond to the left of the "Adjust Colors on Picture" option on the screen.
- Press PEN DOWN.

When you press PEN DOWN, the screen automatically returns to your picture. A star shaped cursor appears.

- Move the cursor onto any one of the picture's colors with which you want to experiment: background or paint color.
- When the cursor lies over your color choice, press PEN DOWN.

Immediately, the color changes. However, by moving your finger across the PowerPad overlay, you can control additional changes.

- To change the hue (the COLOR bar), move your finger horizontally across the pad. As you move from the left to the right, you actually are moving down the COLOR bar through the spectrum from 0 level (black) to level fifteen (brown).
- To change the luminence (the LEVEL bar), move your finger vertically across the pad. As you move from the top to the bottom of the pad, you actually are moving down the LEVEL bar from 0 level luminence (which is dark) to level fifteen (which is light).

As the picture changes, color boxes on the screen menu and the COLOR MENU are changing to reflect what you are doing on the picture screen.

If you want to change a second color on the picture before returning to one of the menus, press PEN DOWN again. This brings back the cursor. Move the cursor onto the new color you want to change, press PEN DOWN and repeat the process.

APPENDIX A: THINGS TO DO

1. VARIATIONS ON AN APPLE

A simple design can become a structured work of art when you use Micro Illustrator's drawing functions and your imagination.

Begin with an elementary shape: an apple. Try drawing the outline of the apple in various ways, using a variety of brushes.

- one continuous line
- many straight lines
- broken lines
- dots
- one thick line
- multi-colored lines

Notice how the various brushes affect your design. What changes occur when you switch from a single-point brush to a multiple-point one?

2. FILLING UP

Try using these various methods of coloring your apple.

- Draw inside the outline of the apple until it is completely painted.
- Use the FILL command. What effects do you create filling with a checkerboard paint? Erase part of the pattern to suggest reflection.
- Fill the apple by drawing a series of lines in a single direction, very close together. Vary the width of the lines if you want.
- Fill the apple with a large number of dots using various brushes and the POINTS function. Use the MAGNIFY function to change colors in small portions of the apple, creating a bruise, a worm hole or variations in the skin color.

Finally, erase the outline of the apple to gauge the integrity of your designs and patterns.

3. ELECTRIC SNOWFLAKE

The beauty and symmetry of a snowflake have mesmerized artists for centuries.

Using MIRROR and DRAW, find the screen's center point and begin to draw a snowflake. The delicacy it suggests makes the single dot brush a good choice, although you can create interesting images with larger line brushes.

Play with the snowflake's color. FILL the background with various paints. At one of the outer edges, begin to fill the lines of the flake, watching the pattern the process creates. Add detail in a second color and fill the design again.

4. PERSPECTIVES

Using the LINE function, create a horizon that represents a plain. Extend it across the entire screen about one-third of the way down from the screen's top. Starting in a bottom corner, stretch a line to the horizon near the middle of the screen. Can you see a highway? Add lane markers parallel to the beginning line. Add phone poles, fence posts and trees. The closer objects are to the horizon, the smaller and closer together they appear.

Experiment with this idea. Try drawing a river receding into the horizon. Allow it to meander around trees or rock formations. Add color. What should happen to an object's color as it approaches the horizon? How can you use the checkerboard paint to achieve this effect?

5. WHAT'S IN A PICTURE?

Use the MIRROR function to create your own set of designs and patterns. Use a single color on a white or black background. Take turns with family and friends looking for familiar objects in the ink, much as a child looks for figures in clouds. Use various drawing functions (LINES, RAYS and CIRCLES) to create many types of images.

6. COLOR POWER

Color is important in the balance of pictures.

Draw five stripes of different widths that extend across the screen. Fill the top two stripes with white, and the bottom three with black. Next, reverse the colors with the black on top and the white on the bottom. Color has weight. Which picture is top heavy?

Colors also suggest feelings, temperature or time of day. Draw a farm or city scape using colors that suggest sunrise on a warm summer day. By altering only the colors, suggest in the same picture a cool rainy day.

7. BACK TO BASICS

The three basic shapes are a rectangle, a circle and a triangle. Using **FRAME**, **CIRCLE** and **LINES**, create one of each shape. Next, see if you can create a three-dimensional effect by adding straight lines or by repeating shapes. One goal is to convey a box, a sphere and a pyramid.

APPENDIX B: REPLACEMENT OVERLAYS

If you accidentally damage the overlay that came with Micro Illustrator, replacement overlays are available. Send \$6.00 by check or money order, your name and address to:

Customer Support
Chalk Board, Inc.
3772 Pleasantdale Road
Atlanta, Georgia 30340

This \$6.00 charge includes \$3.00 for the replacement overlay itself, and \$3.00 for postage and handling.

APPENDIX C: PHOTOGRAPHING AND TAPING YOUR PICTURES

If you create pictures with Micro Illustrator that you would like to photograph, follow these steps for best results:

1. Use a 35mm camera. An instamatic-type camera might produce unsatisfactory results. Mount the camera on a tripod. Attach a cable release.
2. Darken the room to avoid reflections in the screen. If you prefer, tape a blackened cardboard box to the screen, cutting a hole in the opposite side slightly larger than the size of your lens. Proper screen and room lighting also will be found best through trial-and-error. All televisions and monitors differ. Do not use a flash.
3. Use f(stop) 8 at 1/4 of a second shutter speed with ASA 64 Daylight film. Never use a shutter speed shorter than 1/15 of a second.
4. Take meter readings and record them.
5. Bracket your exposures; expose one full stop brighter and darker than your original setting.
6. Keep records of your exposures for later reference.

If you own a video recorder, you can create a "slide show" of many pictures. Simply buy an F adaptor and plug it into the VIDEO IN on your recorder. Plug your computer into the back of the adaptor.

VIEWS FROM AN EDUCATOR

The search is on for ways to use computers to design effective educational environments in homes. In my judgement, Chalk Board leads this important exploration to rediscover the home setting as a powerful force for learning. Simply stated, Chalk Board is rapidly becoming synonymous with learning through home computers. This company is committed to building responsive environments that will help more people reach their full potential.

To this end, Chalk Board has created PowerPad and Leonardo's Library.[™] The touch-sensitive pad offers learners a new method of communication with computers. PowerPad is complemented by a library of software that is well conceptualized and carefully written. Each package addresses its unique learning objectives but also remains interrelated with other library units. In the family setting, the software, by its very design, stimulates intelligence, motivation and achievement. As I view it, this integrated system provides significant opportunities for learning not only for those people who have previously experienced academic success, but also for those whose potential has not yet been realized.

Here are four reasons why the Chalk Board PowerPad and its software library serve as an important force for learning:

- People find initial learning experiences meaningful and the desire to repeat them furnishes continuing motivation for learning.
- Learners put forth a real effort and gain satisfaction from accomplishing a task they find challenging.
- Learners discover the pleasure that comes from having acquired and used new understandings, new interests and new skills.

- When teams of people use PowerPad, they develop an interest in working with others for a common purpose.

Further, these conditions for learning take on even more significance for individuals because the PowerPad has built-in flexibility that gives learners personal power to structure the activities of the computer.

Developed by Island Graphics Corporation for Chalk Board, Inc., Micro Illustrator helps you create sophisticated screen images for home entertainment, business and education. With a variety of "paint brushes" and 256 color options, Micro Illustrator lets you use your finger or stylus to create and experiment with a variety of line qualities and color combinations. Built-in functions make drawing geometric shapes and figures as simple as a touch. You can fill in picture sections with the "paint color" of your choice, erase part of the picture, or all of it. If you are looking for detail, a magnification capability lets you draw with control in a very small section of the screen. Use a four-part mirror function to create designs with kaleidoscopic effects. Finally, you can save your designs on a diskette or cassette to view or change later.

Micro Illustrator is a sophisticated artistic tool. For the beginner, it offers a new approach to art. Its features encourage experimentation with lines, shapes and colors. For the more advanced user, it becomes a high-resolution design tool, capable of freeing you to explore the world of art in ways unavailable to you before. For all users, Micro Illustrator provides an enjoyable, challenging and non-threatening opportunity for learning to harness the power of the computer and to understand our interactive relationship with high technology equipment.

Chalk Board, then, has created an exciting way to expand opportunities for learning. PowerPad and Leonardo's Library will provide parents, teachers and other educators with valuable assistance as we enter a period of increased use of home computers as a constructive means for quality education.

*Dr. Robert L. Sinclair
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Director, Center for Curriculum Studies
University of Massachusetts, Amherst*

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